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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,041	12/20/2001	Youping Zhang	NMTC-0755	3647

30185 7590 10/27/2003

NUMERICAL C/O PARK
VAUGHAN & FLEMING LLP
SUITE 201
508 SECOND STREET
DAVIS, CA 95616-4692

EXAMINER

ROSASCO, STEPHEN D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 10/27/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,041

Applicant(s)

ZHANG ET AL.

Examiner

Stephen Rosasco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 2
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Detailed Action

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Lippincott et al. (6,574,784) or Liebmann et al. (US 20020091985 A1).

The claimed invention is directed to an optical proximity correction method, apparatus for performing the method, mask and method of using the mask. The claimed invention provides a system that facilitates minimum spacing and/or width control during an optical proximity correction operation for a layout of a mask used in manufacturing an integrated circuit. During operation, the system considers a target edge of a first feature on the mask and then identifies a set of interacting edges in proximity to the target edge. Next, the system performs the optical proximity correction operation, wherein performing the optical proximity correction operation involves applying a first edge bias to the target edge to compensate for optical effects in a resulting image of the target edge. While applying the first edge bias to the target edge, the system allocates an available bias between the first edge bias for the target edge and a second edge bias for at least one edge in the set of interacting edges.

Lippincott et al. teach a method comprising: receiving information for a first edge segment; receiving information for a second edge segment, said second edge segment

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being adjacent and collinear to said first edge segment, and at least one of said first and said second edge segments not exceeding a length threshold;

determining a first bias for said first edge segment; determining a second bias for said second edge segment; selecting one of said first determined bias and said second determined bias to apply to both of said first edge segment and said second edge segment.

And wherein said information for said first or second edge segment comprises at least one of a width of a polygon, a length of said edge segment and a spacing from said edge segment of said polygon to a neighboring feature in a layer.

And wherein selecting one of said first determined bias and said second determined bias is based on a determination of which of said first determined bias and second determined bias establishes a more desirable edge, said edge resulting from a combination of said first edge segment and said second edge segment.

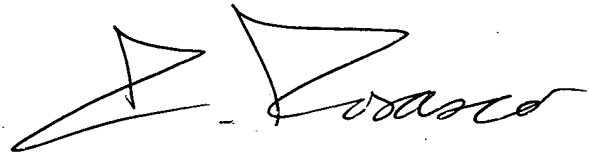
And wherein said spacing information for said first edge segment and said spacing information for said second edge segment comprise a spacing between a respective edge segments and a first and a second corresponding nearest other feature.

Liebmann et al. teach a method to determine optical proximity correction and assist feature rules which account for variations in mask dimensions, exposure tool and process in the manufacture of an integrated circuit, comprising steps of: choosing a reference pitch and finding mask features of interest which optimize a process window; analyzing a series of other pitches and mask features of interest by finding a common process window with the reference pitch; computing functional fits to data found for the common process window for the mask features of interest; and determining a rules table by solving for spacings of interest in a product design.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Rosasco whose telephone number is (703) 308-4402.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661. The number for all Faxes **(703) 872-9306**.

A handwritten signature in black ink, appearing to read 'S. Rosasco', with a stylized, angular flourish at the beginning.

S. Rosasco
Primary Examiner
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S. Rosasco
10/20/03